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LECTURE

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INTRODUCTORY TO THE COURSE OF

ANATOMY AND PHYSIOLOGY,

DELIVERED

AT THE OPENING OF SESSION, 1831—32.

BY

JONES QUAIN, M.D.,

PROFESSOR OF ANATOMY AND PHYSIOLOGY.

LONDON:

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TO THE
STUDENTS OF THE MEDICAL SCHOOL,

IN THE

University of London,

THESE PAGES ARE INSCRIBED,

BY

THEIR SINCERE FRIEND,

THE AUTHOR.



INTRODUCTORY LECTURE.

GENTLEMEN,

WHEN, at the opening of the Session, my friend and colleague availed himself of the occasion, to direct your attention to the different departments of medical study which are confided to our superintendence, it was with unfeigned satisfaction I heard him dwell on the advantages and importance of a liberal education. Important it must be to every individual in a cultivated and enlightened community, but to none more important than to the members of the different professions.

To promote the cultivation of science—to enlarge the boundaries of knowledge, and diffuse the advantages of education as widely as possible—to combine the benefits of classical with scientific attainment, and impart to students of every profession the influence of that light which flows from general acquirement;—these are the purposes for which this University was originally founded, and to such objects it has been, and, I am sure, ever will be, steadily directed. To be connected by the ties of friendship with those eminent men I now see around me, would, under any circumstances, be a source of sincere satisfaction:—to be associated with them in the cultivation of science, and in the diffusion of knowledge, I esteem an honourable distinction. If any thing could further enhance, in my estimation, the value of the office I have the honour to hold, it is, that by forming a new and more extended acquaintance with the junior members of my profession—an acquaintance I have ever felt happy in cultivating in

private as well as in public—it enlarges the sphere of my usefulness, and affords more ample means of promoting a taste for (fain would I add, diffusing a knowledge of) that science for which I have always felt an ardent interest, and to which I have devoted my life. It has been often said, that the “proper study of mankind is Man:” it is a study in which several classes of persons engage, each with special views,—with distinct objects. Some study the laws by which Man is bound in society, with a view to expound them to others, or to amend and improve them:—some study his mental powers—his moral character, to correct his errors, or ameliorate his condition; whilst others investigate his physical composition, in order that they may be able to correct those errors of action, or, in other words, those diseases which, from time to time, occur, and so mitigate some of the “ills which flesh is heir to.” This is our object; it is with this view that we enter on those studies which here engage our attention.

Man—or rather his corporeal frame—is observed alternately in a state of action or of rest, exhibiting at one time all the varied movements which it manifests during life, at another, that total privation of action and of power which supervenes at death. It is in the latter condition only that the body becomes the subject of anatomical investigation; and were we to confine ourselves solely to that state, our researches would enable us to proceed no farther than to ascertain that it was made up of many parts, each exhibiting a certain form and size, consistence and texture. It would be, in fact, as if we took up a watch after its movement had ceased, and proceeded to examine it. That it is a very complex structure, we should see at a glance—that each of its parts was of a particular form, and that all were placed in a certain position with regard to one another; and there our enquiry should terminate. But if it were put in motion, a new stimulus is at once given to enquiry; a new field is opened for it, and an additional interest is felt in pursuing it. The connexion between its different

parts is perceived—their reciprocal influence recognised—the dependence of all on a common moving power is ascertained—and the subservience of each to a common end is demonstrated. Just so it is, that after we have examined the different parts and organs of the body, we find the details into which we had been drawn so numerous—I had almost said multifarious—that the mind retains a disagreeable impression, as if of complexity and difficulty. But when we take it in another point of view; when we observe the limbs in action, and note the infinite variety of movements they can execute, tracing, at the same time, their perfect adaptation to their various purposes,—when we examine the powers of those curious instruments, the organs of sense by which we maintain our relations with the world around us,—when we scrutinize the functions of those inward parts which are more immediately connected with the life and well-being of the individual,—and when, at every step of our progress, we recognize each of these parts as instruments designed for special purposes, and in them trace the workings of causes in the production of effects, the adjustment of means conducive to ends—then, every idea of complexity is removed, and any impression of difficulty that may be incidental to the nature of the subject, gives way to that gratified feeling which arises from the discovery of truth—the acquisition of useful knowledge.

When viewed in this light, we see how difficult it is to separate, even in thought, the consideration of structure from that of function, or, in other words, to dissever Anatomy from Physiology. The mind will not, perhaps cannot, rest merely on the consideration of an agent, or what can become such, in a state of continued quiescence, any more than it can reason on the uses of a machine in constant inaction. Hence it is that we take structure and function together, we join physiology to anatomy, and treat them as one department of study.

I may here observe, that this is not a detached or isolated subject; it is, on the contrary, variously connected with

different branches of science, with some closely and directly, with others it has but a secondary relation; and as we proceed in our enquiries, we necessarily pause to make references to them. For instance, when we proceed to an examination of the organs of locomotion—those by which we move from place to place, and execute various actions—we find ourselves at once engaged in questions connected with the science of Mechanics; for we have to consider the force of moving powers, the properties of levers, and the relative advantages of levers of different orders in particular circumstances. And in the whole range of philosophical research, there is scarcely any subject which presents more to interest the enquiring mind, than the varied phenomena of muscular action.

It is obvious that the condition of every living thing is influenced by external agencies. The air which we breathe, the food which we take, the heat and light to which we are exposed, exert sensible effects on our system; and when we enquire into the nature of these effects, we must in the first place become acquainted with the properties of those subtile agencies by which they are produced. The study of the organs of sense and of their functions, also presupposes some acquaintance with the physical sciences. The theory of vision, for instance, would be altogether unintelligible without a knowledge of the properties of light. To reason on the use of the different parts of the eye,—to understand the influence which they exert on the rays of light which pass through them, requires an acquaintance with the laws, according to which light is transmitted through bodies which are transparent, reflected by those which are opaque, and bent out of its course, or refracted by the different media through which it passes. On the same principle, the study of the mechanism of hearing requires a knowledge of the properties of sounding bodies, of the mode of production of sound, and the laws of its transmission. So that as we proceed with our physiological studies, we are gradually introduced to an acquaintance with the science of Mechanics, of Optics, and Acoustics.

Again, the constituents of the body are constantly undergoing a succession of changes; new matter being received from without to supply loss,—to repair defect, at the same time that old and effete particles are as constantly cast off by various outlets. Changes such as these, and the play of affinities by which they are effected, obviously come within the domain of Chemistry. The examination of the composition of the solid and fluid constituents of the body, and of the secretions elaborated by the different organs, comes under the same head; and when, in investigating the function of respiration, we enquire into the alteration produced in the respired air by its stay in the lungs, we can only determine its nature and extent by the known principles of Eudiometry. These are the steps by which your medical studies insensibly lead you on, and urge you to an acquaintance with other sciences. It requires little more than a passing glance at the subject, to perceive the effect and tendency of such pursuits: they cannot fail to strengthen the mind by the habits of investigation they require,—to enlarge it by the comprehensive views they unfold, and so render Medicine, in the truest sense, a liberal art.

The branches of science whose connexion with Anatomy I have just now indicated, may be viewed in the light of accessories. There are others which bear so close and intimate a relation to it, that they must be considered of primary importance. None bears so close a relation to Human Anatomy, as that which treats of the structure of animals. For as Man is placed at the top of the scale of being, he necessarily participates in some particulars, of the characters and conformation of those creatures which are placed below him, at the same time that he exhibits others which are peculiar to himself; hence arise many points of analogy and relation between his internal structure and that of animals.

This, surely, is a sufficient inducement to us to engage in the study of Comparative Anatomy,—a science which has for its object a knowledge of the structure of the different classes and orders of animals, and which is so called, because

it treats of each part with special reference to the corresponding structures in the human body. Still it must be confessed that it has not hitherto received amongst us that degree of attention which it merits. Elsewhere, its importance and utility have been fully appreciated, and adequate efforts have been made to promote and advance it, by establishing professorships, delivering systematic courses of instruction, and forming zoological collections. It is gratifying to perceive, however, that of late a taste has been gradually springing up, and an interest is beginning to be felt for this pursuit. The heads of this institution have taken the most efficient means to promote and foster it, by founding a professorship expressly for its cultivation. From this arrangement much is to be expected; many of those who engage in the study of Human Anatomy, as part of their professional education, will, I make no doubt, extend their enquiries farther, and seek to become acquainted with Comparative Anatomy, not merely as a matter of curiosity, but for the valuable information which may be derived from it.

It may not be altogether beside our purpose to observe, that Dr. Jenner's first introduction to public notice, was by his acquaintance with Natural History. It was the study of zoology, and the spirit of observation and research which it fostered, that suggested to his mind the course of enquiry which led him on to the discovery which has immortalized his name, and conferred such lasting benefit on mankind. The discerning mind of Mr. Hunter, too, led him, at a very early period of his career, to appreciate the importance of this pursuit. He began with the study of human anatomy. A knowledge of the structure of different parts, naturally prompted him to inquire into their functions. But, as he had before him the organs as they exist in one animal only, he felt that he did not possess the information necessary to arrive at just conclusions; he, therefore, proceeded to investigate their conformation in the different classes of animals, from the highest to the lowest. By these means

he collected together all the conditions of the problem to be solved, and his mind was prepared to draw just inferences from adequate data. This is the line of investigation,—this is the only course of inquiry which ever can lead to a knowledge of the laws of life, or of the functions of the animal economy. For “the basis of our physiological researches becomes broader and deeper, in proportion as our survey of living beings is more extensive. The varieties of structure they present, furnish most important aids of analogy, comparison, and various combination; and the nature of the process receives, at each step, fresh elucidation.” It was the full appreciation of these principles that induced Mr. Hunter to extend his researches through every province of Nature’s kingdom; from each he gleaned contributions, and stored them in that great treasury of knowledge which he left behind him—a lasting memorial of unwearied zeal, comprehensive views, and intimate acquaintance with natural science. It is not too much to say of it, that it is the noblest temple ever raised to science by the unaided exertions of any single individual.

When we follow in the steps of this great master, when, after his manner, we compare the humblest form of animated thing with that which is highest in the scale of being,—the simplest with that which is most complex in its structure and perfect in its organization, we perceive, even at a glance, the vast distance which separates them. At one end of this great chain of being, we find a multitude of living things, so simple in their structure, that they exhibit no function save one—nutrition; no power save one—that of continuing of their species. At the other is Man, greatly pre-eminent over all the rest by his many and high endowments. Between the two extremes are placed multitudes of groups, presenting every variety of form and size, of character and condition, but which, when classed and arranged, are found to constitute a uniform series, each like the links of a chain, being connected with the group above it and that below it, and so forming a continued line from the highest to the lowest. To ascend,

then, from the lowest point to the highest elevation in this extended series—to pass along link by link through the chain which connects it, is an effort not unlike that which we make when we ascend an eminence, in order to survey a prospect, where, every step of the ascent opens a wider view,—every new view gives an addition to knowledge, and the pleasure of possession more than repays the trouble of acquiring it. When we view the Animal Series as a whole, we observe arrangement and order pervading every part of it; when we inspect the individual links of the chain, we find each fitted for its sphere and suited to its lot; when we dip beneath the surface and scrutinise their composition, we trace, in every part of it, a wondrous adaptation of means to end—of structure to function,—furnishing such incontestible evidence of design and contrivance, that the mind cannot but ascend at once to the contemplation of a designer, and soar from nature up to nature's God.

It is not, however, because it is a part of Natural Science, or because it enters into systems of general education, that we here engage in the study of living structures and their functions. Nor do we require you to enter on so wide a field of investigation, as that of the whole Animal Kingdom. We direct our attention to one individual—to that one which is placed at the top of the scale, and we examine his composition in order to make a practical application of all the knowledge we can derive from that source, and from every other available source, in the alleviation and cure of disease. Such is the purpose for which we engage in the study of what is termed Human Anatomy,—a Science which has for its object a knowledge of the structure and functions of the human body; structure and function being studied as a necessary preparative—rather as an indispensable pre-requisite—to the right understanding of those derangements which constitute disease. When viewed in this light, we at once see that Anatomy bears the same close and intimate relation to every department of the healing art, which chemistry does to the arts generally, and which mathematics do

to the physical sciences. Hence its importance has been at all times fully recognized ; its utility may be traced in every page of the history of medicine. Were it not for the facts which anatomical research discloses to us, Physiology would be but a tissue of hypotheses and speculation ; Surgery would be altogether without a guide ; and Medicine must degenerate into a blind empiricism. Possessing so many relations, as this subject does, with other branches of science, and bearing such direct and immediate application to the healing art, which is so intimately connected with the well-being of the community, you will doubtless feel disposed to enquire what is the scope and plan of a systematic course of lectures on Anatomy and Physiology.

In courses of instruction arranged on scientific principles, it is the practice to commence either by laying down a series of simple propositions, which, as being so many ultimate truths, form the basis of the science which is to be taught,—as is the case in mathematics : or as in chemistry, by stating the existence of a certain number of simple substances, which, as being the elements or elementary constituents of all those to be subsequently brought under consideration, form a foundation for the whole superstructure of the science. Just so it is in our course of Anatomy ; we know that the body is made up of solid and fluid constituents, and that the solids are divisible into a certain number of simple textures or tissues, which we consider elements ; not ultimate elements, but what in technical phrase are termed organic elements. We therefore commence by exhibiting the properties and characters of these, and then proceed to the compound structures which are made up of two or more of them ; adopting what may be considered a natural method, for we proceed from simple to compound, *á notioribus ad minus nota*. The subjects treated of in this part of our course, have received much attention of late years. From the method pursued in its cultivation, that of analysis, it has been termed, by some, Analytical Anatomy ; but as it treats of the general or pervading constituents of the body, and

exhibits enlarged views of their properties and characters, it is usually named General Anatomy. Now as a knowledge of the structure and functions of the different parts of the body is a necessary preliminary to the investigation of those derangements which constitute disease, we can at once perceive what an intimate relation subsists between General Anatomy and Pathology; it is, in fact, the proper introduction to the study of disease, which is the main object of your pursuits. When attending the lectures on pathology, a new field of enquiry will open to you; your previous anatomical studies having made you acquainted with all that is known, relative to the healthy and natural condition of parts, you will be prepared to follow with effect the discourses of the Professor of Pathology, in which he will treat of those alterations of structure which are induced by disease. And when once acquainted with the physical changes, you cannot fail to proceed a step farther, and enquire what are the constitutional disturbances which accompanied these changes during life,—what are the signs which characterized them? and so you group round each morbid alteration its appropriate symptoms, and make them stand to one another in the relation of sign and thing signified. In this way you proceed, step by step; one part of your studies leading to another by an easy and natural transition, whilst all are so directed as to converge towards the chief object of your pursuits—the knowledge of diseased structures and deranged actions.

After having concluded the preliminary section of the course which treats of general anatomy, we pass to that which has for its object the special description of the different parts of the human body. In this we follow the plan adopted by systematic writers; we describe successively each in its proper order, the osseous system, the muscular, vascular, and nervous, first dwelling on the component parts of each, then dilating into general remarks on the aggregates which they make up. In the next place, we examine those groups of organs which are subservient to the life of

the individual, the continuance of the species, and the maintenance of our various relations with the world around us. And finally, after having investigated the structure of each organ and apparatus, we proceed to enquire what is its use, what are the functions it performs? When treating of the functions, we in the first place state all the facts which have been clearly ascertained with regard to them—the observable phenomena as they occur, and in the order of their occurrence; and then point out the inferences which legitimately follow from the facts set forth: and after taking a short retrospect of the opinions which have been entertained, from time to time, by those who have treated expressly of each subject, we conclude by dwelling on those which have the sanction of the best living authorities, and which, as such, may be considered the established doctrine of the present day. This is the section of our course which treats of Physiology.

I may here observe, that as we usually select our specimens from the adult subject, inasmuch as it presents the organs in their standard and perfect condition, our account of them would necessarily be incomplete, were we to confine it altogether to that single point of man's existence. For the body is never stationary, it undergoes a series of changes corresponding with the different ages of life; it commences in a parasitic state of existence in foetal life, from which it migrates, if I may so say, into infancy,—from infancy through puberty to adult age, and finally droops into decrepitude and senility. To you these changes are not merely a matter of curiosity, they form a necessary part of your study. Your views are not to be confined to any one period of man's life, or to any one state and condition of his organs. For in the discharge of your professional duties, you are required to examine and to treat the diseases of persons of all ages and of every condition, and to adapt your remedies to their various susceptibilities.

Having thus examined the structure of all the parts of the body *seriatum et singulatim*, we in the next place review them in their state of aggregation,—wherein we find

them bound by various ties, associated by special sympathies, and united to form a being endowed with various powers and fitted for the highest destiny. Man in his individual capacity is thus presented to us,—not that we mean to study him as a subject of moral restraint, or of civil government, but merely as a zoological species, in which point of view he presents much to interest the physiologist as well as the naturalist. For when we look abroad and observe the infinite diversity of form and feature, of colour and stature, which he exhibits in different regions of the earth's surface, we naturally enquire whether there were originally formed several distinct races of men, or whether all are not descended from one stock—the diversities observed being merely varieties of a single species. The latter is the position we mean to affirm. When we have closed our remarks on this subject, we shall have concluded the physical and natural history of man.

One part of the course yet remains; though an important one, a short notice of it shall suffice on the present occasion: it is that which is addressed to the practical anatomist. When treating it, we consider the body as divisible into several compartments or regions, each of which may become the subject of disease or of accident, requiring operations. We indicate the boundaries and extent of each region, point out the elevations and depressions which chequer its surface, and then examine the parts contained within its area, taking them as they are placed, one beneath the other, from the skin to the solid substratum—the bone. These are the land-marks which guide the surgeon in the course he should take, which determine the direction, the length, and the depth of each incision he makes, and prescribe to him those limits within which he must confine himself, and beyond which he is on no account to go—those rigorous limits—

“ Quos ultra, citraque nequit consistere rectum.”

Such is the outline of the course of Anatomy and Phy-

siology, on which we are now about to enter. Perhaps it may appear to some that I am presenting to you a field too extensive—subjects too numerous. Were I to narrow it to a more restricted limit, or reduce it to a lower level, I should not do justice to the subject, to this University, or to you. No department of knowledge has advanced more rapidly, even within a few years, than this has done, more particularly as it is taught in the schools. From Mr. Hunter's time until within ten or fifteen years, it made but little progress amongst us; which cannot excite surprise, when it is recollected that instead of being encouraged, it was discountenanced—instead of being promoted, it was left to struggle with accumulated difficulties. Elsewhere a different course was pursued, and with the best results. New facts were discovered, new principles evolved, and the advance of this branch of enquiry has been made to keep pace with that of the kindred sciences. Its literature has been enriched by numerous additions; contributions have flowed into it from various quarters. Comparative anatomy has lent it all the aid of illustration,—Zoology, of extended views,—Chemistry, of minute research,—Physiology, of experimental enquiry: from all it has received light, to each it gives back a reflected influence; and so by a combination of efforts, it has become the index and the register of all the improvements which are being made in every department of Natural Science.

When we come to examine the connexion which subsists between Anatomy and Physiology and the Healing Art, we find it so intimate, and the relations so many, that they must be considered not as merely important branches of its study, but as essential requisites even in ordinary practice. The object of Medicine is to preserve health, and to alleviate or cure disease. Health and disease are but different states of the same individual—opposing conditions in which we occasionally find him. Now, to devise means by which to preserve the one and avert the other, obviously requires that we should know on what each state depends,—what

were the previous circumstances from which it arose, and which may be considered to have caused or produced it. Many diseases are but derangements of the functions of one or more organs, and they are those which are most easily controuled by the resources of art. Others consist of a change of structure, in the part or texture in which they are situated. Now to distinguish a change in the structure of a part, pre-supposes a knowledge of its natural and healthy condition; and to recognise a disturbance in its function, equally pre-supposes an acquaintance with its manifestations during health. For health and disease being opposing states, we can judge of them only by contrast and comparison. When prosecuting your physiological enquiries, with a view to make them available to the diagnosis or discrimination of diseases, it will not suffice to study the action of each organ separately, you will have to proceed farther, and ascertain the connexions of each with the others, as well as the influence of those sympathies by which they are associated and linked together as parts of one whole. For as when examining the action of any machine with a view to repair it when out of order, we must ascertain not only the form, size, and arrangement of its parts, but also their mutual connexion and rate of movement; so in our living fabric, as its different parts like the spring, wheels, and levers of other pieces of mechanism, are associated and placed in a state of mutual dependence, we must clearly understand the mode and the nature of the dependence, before we can devise a rational and consistent plan to rectify those errors of action which from time to time occur. This is the sort of knowledge which is most available for practical purposes. It is the knowledge of this mutual dependence of organs in health, which enables the physician to estimate their reciprocal influence in disease, and to determine which amongst a group or train of morbid phenomena presented to him is primary,—which, secondary and accidental. For it enables him, by tracing back the chain of causes and effects, to ascertain what was the original point of departure

from the state of health—what was the train of disturbances which followed from this, and to distinguish these from such as may have arisen during the progress of the disease, and are therefore to be considered as complications super-induced upon the original malady. It is by the exercise of a discriminating power such as this, that the difficulties of complex cases are cleared up. Nothing short of it can furnish an adequate basis on which to found a consistent and rational plan of treatment.

I need not call your attention to the close connexion which subsists between Anatomy and practical surgery; it is so generally known and admitted, that it is no longer necessary to insist on it. The importance of physiology to the surgeon may not, at first sight, appear so manifest. Still, when we trace back the history of the progress of surgery, (and no useful art has made more decided advances than it has done even of late years,) we find that several of its improvements have flowed from a better knowledge, not merely of the structure of parts, but of their vital properties. In fact, an improved knowledge of structure could only lead to better methods of operating, or to the construction of better instruments. But these form only a part—a small part of a surgeon's acquirement. He may possess all the dexterity necessary to execute, with precision, any operation, but may still be unsuccessful in the results of his practice; because he may not possess the discretion necessary to select the proper time for operating, or to adopt such a course of preparatory treatment as would place patients in a favourable condition; and still more, perhaps, because he may not know how to treat those serious constitutional disturbances which arise after surgical operations. But these are pathological questions, and, in a manner, beside our immediate purpose, which is to shew, that experimental physiology has contributed to the advancement of surgery. Experiment shewed that a limb could maintain not only its life, but all its powers undiminished even after the main current of its blood had been cut off;—experiment proved that the minute vessels of

such a limb, when the additional current is thrown upon them, can not only enlarge by distension, but also become strengthened by an increased nutrition, so as to withstand the increased pressure which they have to sustain;—experiment, in the next place, shewed that when a ligature is tied round a vessel, it is nearly cut through, (one layer of it only remaining to resist the force of the blood)—and, finally, experiment clearly demonstrated that this division of the coats of the vessel, so far from exposing to risk, is the best means of safety, by inducing a rapid union of the sides of the vessel. Now, when we retrace the improvements which have taken place in the treatment of diseases and injuries of arteries, and find that they have gone on, step by step, and concurrently with improvements in the knowledge of the properties of vessels, we shall see conclusive evidence that Surgery (in that department of it in which it boasts the greatest advancement in modern times) is indebted for that advance to experimental Physiology.

These are a few of the many applications which may be made of anatomy and physiology to practical medicine and surgery. As we proceed in our course, from day to day, additional instances shall be cited,—for facts and inference, practice and theory, should always go hand in hand, and be presented concurrently. These are the portals to Medicine—and Medicine, I trust, will be to you a passport to advancement and distinction. Few pursuits, perhaps none, hold out a fairer prospect of attaining these desirable ends, than yours does, and by legitimate means too. Power and influence may perhaps at times bestow place—they cannot give character; patronage may raise to distinction—it cannot confer credit on its favourites, or set the seal of currency on their pretensions. No; personal character is the only introduction that can be trusted to,—professional acquirement the only means of advancement that can be relied on,—probity and truth the only auxiliaries whose aid need be invoked. These have seldom failed in any profession; in medicine they are less likely to do so than in any other.

It was a favourite saying of Dr. Hebbertden, that a phy-

sician's life, like that of the Roman pontiffs, should be divided into three periods;—in the first he should learn the duties of his office; in the second perform them; in the third prepare others to succeed him in his functions, by communicating to them the requisite information. The first period, that of study, you are now about to enter on. I am aware that many of those I now address have been already initiated in a considerable part of their professional duties during their private education—the public and academical education is that which is alluded to. The time allotted to it is confessedly short, considering the nature of the duties for which it is a preparative: and as every one must be aware that his future prospects and professional character will altogether depend on the preparation which is now made, it is not too much to say that the period which intervenes between the present hour and the time of departure to your various destinations, is the most important of your lives. This, period, then, is to be sedulously devoted to general, and professional acquirement—general acquirement being as necessary to maintain your proper rank in society, as professional acquirement is to enable you discharge your duty with credit to yourselves and satisfaction to those who commit themselves to your care. Connected as medical men are with every grade in the community, they cannot possibly maintain that position to which their profession entitles them, unless they are generally well-informed persons. For the rank which is held by professional men, is not supported by prescription or by privilege; it depends on public opinion, and can be sustained only by acquirement and knowledge. If on examination they be found deficient in these, no matter to what extraneous aids they may trust—no matter to what expedients they may resort, nothing can support them in their present position; they must fall to a lower level, and sink, perhaps irretrievably sink, in public estimation.

To acquire the knowledge necessary for these various purposes, is the end and aim of your present pursuits. And I confidently trust that your expectations, and those of your

friends, will be fully realized. In the new relations which are about to be formed between us here, you, I am sure, will perform your part by steady application to study,—we shall assuredly fulfil ours by zealous co-operation and constant superintendence. The heads of our University have already executed their part of the compact: their theatres and laboratories,—museums and libraries, are all open to us, so that we are abundantly supplied with all the facilities necessary for the furtherance of the ends we respectively propose to ourselves—you in the acquisition, and we in the diffusion of useful knowledge. Nor is this all; by collecting together within these walls, all the elements and means of instruction in every department of science, they secure to the votaries of each the advantages to be derived from the influence of all—for to widen the sphere of observation, is to enlarge and enlighten the mind. Hence, there necessarily must arise in this place what exists in every great academical institution—there must be produced within it, and about it, what may not unaptly be termed a floating atmosphere of learning, which necessarily imparts some degree of influence to all,—even to those whose professional avocations require them to direct their chief attention to some one department of study. Entering on your pursuits, then, with such views as these to impel,—such feelings to animate,—your time cannot but be profitably spent: and when at some future period, perhaps when engaged in the active duties of a useful and honourable profession, you look back on the time of your sojourn here, I confidently anticipate that it will always be with a feeling of satisfaction arising from the consciousness of having sedulously devoted it to liberal pursuits—to the acquisition of useful knowledge.

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